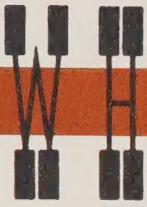


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IMPACT STUDY

**for the Counties
of Placer & El Dorado
and the City of Auburn**

WILSEY & HAM



Wilsey & Ham

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September 26, 1966

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Counties of Placer & El Dorado
and the City of Auburn
% Mr. Nick Bishop, County Executive Officer
Placer County Court House
Auburn, California

Gentlemen:

Wilsey & Ham is pleased to submit the results of our 90-day Impact Study which outlines the most significant economic impacts potentially created by the proposed Auburn Reservoir and related State Park facilities.

As originally stipulated, this study is to be considered as a front-runner to a more detailed analysis which would be forthcoming. Therefore, this report was structured to indicate, in a preliminary sense, the magnitude and implications created by the reservoir and related facilities. In addition, it was to outline a suggested scope of work for the subsequent study.

The primary objective of this study was to ascertain the feasibility of local government operation for all or a portion of the recreational facilities proposed in the preliminary recreation plan prepared by the Auburn-Folsom Interagency Task Force (dated June, 1966).

The conclusion reached as a result of this preliminary study indicated that except for marina operations, it appears impractical for the Counties or the City of Auburn to consider operation of the proposed recreational installations.

However, this preliminary study points out the most important and meaningful realm of economic impact on the Counties and the City as being generated by visitors' expenditures for various goods and services and an acceleration of property development and value appreciation in the region surrounding the lake. An indication of the magnitude of these influences are noted in the report.

Our firm has appreciated the opportunity of assisting the Counties and the City of Auburn in this endeavor and look forward to an opportunity to be of continued assistance as the contemplated project progresses.

Counties of Placer & El Dorado
and the City of Auburn

September 26, 1966

We sincerely hope that the results of this study assist the various local government agencies in their forthcoming negotiations with both the State and federal government and provide a sound basis for the subsequent more detailed analysis.

Very truly yours,

WILSEY and HAM

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IMPACT STUDY

REGIONAL LOCATION MAP

WILSEY & HAM - SAN MATEO, CALIFORNIA

STUDY INTRODUCTION

This study has been completed within the framework of certain time restrictions which indicate the urgency of local decisions relative to the proposed Auburn Reservoir project. As stipulated in the consultant's contract, this study was to be considered preliminary in nature but one from which a detailed scope of work for a much broader and in-depth study could be evolved. This subsequent study is to be funded by the Bureau of Reclamation and probe in depth the various impacts of the Auburn Reservoir on the surrounding areas.

As a means of facilitating local decision-making processes, the following objectives, quoted from the consultant contract, constitute the nucleus of this study.

1. "A preliminary indication as to the economic feasibility of public agency operation of all or a part of the recreational facilities proposed. A distinction will be made between private and public operational entities as well as a relationship to private development in the study area."
2. "An indication will be given of the most appropriate land uses that will logically fall within the boundaries of the Impact area. Included would be uses potentially developable by both public and private entities."
3. "A tentative indication of the location and types of recreational facilities considered appropriate for the use of the recreation area. This will include an analysis of the recreational facilities as proposed and House Document No. 171 and in conjunction with the State Division of Beaches and Parks."
4. "A major circulation plan for the entire area will be presented which will be governed by the basic functional needs of the area tying together the proposed regional land uses and recreational facilities referenced above."

The material offered in relation to each of these subjects should be considered preliminary in nature but broad enough in scope to indicate an order of magnitude of the problems and/or opportunities associated with each subject.

The recommendations contained herein outline the recommended scope of work for the subsequent study. The final scope of work will, of course, depend upon the funds available and the desires of the public agencies involved. However, using the results of this study, the direction of future work can be more readily established.

SUMMARY OF CONCLUSIONS

Based upon this preliminary study of the economic and physical impact of the proposed Auburn Reservoir on the Counties of Placer and El Dorado, and the City of Auburn, the following conclusions are made:

1. The operation of the recreational facilities as proposed in the State's plan by a county-government entity appears to be undesirable from an economic standpoint. The prevailing fee schedules for the contemplated facilities would result in an annual net operating loss. In order to break even on the facilities proposed, fees would have to be double which would undoubtedly result in a decline of the anticipated number of visitor days.
2. It appears from the results of this study that the marina operations could be profitable. However, the success of a concessionaire would depend largely upon the type of lease negotiated with the State and the facilities constructed and maintained by the State in conjunction with the marina development. The analysis contained in this report assumes that the State build and maintain area access, parking facilities, utilities, restrooms and landscaping functions.
3. The operational success of floating beaches and cliff hanging funiculars as devices to overcome radically fluctuating water levels and the precipitous terrain seem questionable, at best. Recognizing that these facilities (beaches and boating facilities) are directly tied to the overall success of the Auburn Reservoir, they thereby become a concern of all agencies involved with the lake and its impact on the surrounding areas. Therefore, we suggest that funds for certain floating beaches be converted to swimming and beach facilities on the bluffs overlooking the lake; that the grading in the Salt Creek area be designed so as to overcome a portion of the vertical differential existing between the level of facilities and the average water surface, and that certain marina operations be concentrated where more normal access and launching prerogatives are available. This grading concept would also enhance the compatibility between the proposed facilities and surrounding land uses.
4. Traffic generated by the recreational user and sightseer justify certain alterations in the circulation pattern as offered by the State development plan.
5. Approximately 10,500 acres within the study area appear conducive to a wide variety of development possibilities. Approximately 5,000 acres are situated in Placer County and 5,500 acres in El Dorado County. These areas must be planned for and controlled by the Counties in order to preserve the natural amenities which exist within this region.

6. The recreation visitors' expenditures for goods and services could add an additional \$4.7 million to \$6.3 million to the economy of Auburn and a \$2.0 million and \$3.3 million to the surrounding communities (at ultimate development).
7. The proposed reservoir will have an additional impact on the area through its stimulation of regional wide development which will, in turn, accelerate the value of property. The magnitude of this increase could amount to 375% in per acre values, over that which would be expected if property continues its present appreciation without the influence of the reservoir.
8. The proposed take-line as offered in the State's development plan does not represent or respect the topography and potential development areas which exist around the lake. Therefore, several alternate take-line criterias are offered which respect the existing terrain, the lake land area requirements and the future administrative responsibility and needs of the region.

The following exhibit outlines the proposed State Park areas, areas of potential future development within the study area, and suggested alternate corridors for a regional circulation system. The regional development prerogatives and trip generating characteristics are discussed in detail in the following chapters.

RECOMMENDATIONS

One of the primary objectives of the study was to establish a tentative scope of work for a subsequent study which would analyze in greater depth the various impact features of the reservoir on the study area.

The following represents an outline suggested for this study enumerating certain items of work to be included.

1. Considering the magnitude of the financial unattractiveness of a majority of the operations contemplated within the Auburn Reservoir Recreational Plan, only the marina concession appears to justify further analysis. Specific market data should be obtained for the region which will be serviced by the Auburn Reservoir and a correlation made between the proposed facilities at Auburn and those existing and proposed at Folsom. This will permit the projection, in detail, of the revenues to be generated by the various marina operations at Auburn Reservoir.
2. To assist in the governmental phasing of various municipal services and bi-county responsibilities, a comprehensive regional plan should be prepared for the area. The regional plan should include an economic base study with emphasis being placed on an analysis of the anticipated growth of the area and taking into full consideration the development stimulant that will be provided by the reservoir. In addition to the basic land use, elements of the plan should include definition of land use areas, circulation patterns, utility facilities, and density patterns.
3. The development of sewer and water facilities should be studied as a means of arriving at anticipated costs, required construction schedules, types of facilities, and legislative devices which can be used to provide said facilities. Experience gained at Lake Tahoe will form a basis upon which the study can anticipate the types and magnitude of development growth problems associated with lake areas.
4. An economic analysis of recreational expenditures for various goods and services at other reservoirs in the area can be studied in detail and the results correlated to Auburn. This item will constitute one of the greatest economic impacts to the study area and, in particular, the City of Auburn. Field collection of revenue data collected by various types of concessionaires can be documented and a separation made between gross revenues and operational costs.
5. A detailed traffic analysis for both recreationists, sightseers, and future residents should be included in the comprehensive planning work. Design standards studied would incorporate the needs of the various types of traffic generators in this study area and analyze in detail the user benefits and costs associated with the alternative routes presented in this study.

Other recommendations which are made as a result of this study are:

- a) The Counties should probe the possibility of shoreline ownership or lease agreements with the federal government in areas outside the State Park developments. These areas, which are considered suitable for other marina and/or shoreline development could be sub-leased to qualified concessionaires or development entities which would provide recreational facilities directly related to development areas which do not presently enjoy convenient proximity to the proposed State recreational facilities.
- b) The State should be encouraged to consider alternate beach facilities located on bluffs overlooking the lake. Small lakes for swimming and beaching are considered to be more desirable to a greater number of people than would the floating beach concept presently proposed.
- c) Negotiations should be pursued with the federal government relative to the location of the take-line. The objectives of the line's locations should include consideration of lake area development, relation between open space areas and take areas, and consistency of governmental administration and responsibility.
- d) Consideration of the formation of a bi-county organization which will administer the various overlapping municipal services and responsibilities which will be necessitated by the lake. For example, sewer disposal, policing of the lake and surrounding areas, etc.
- e) A separate detailed study should be completed which will verify the indicated discrepancy between demand and capacity of the facilities proposed. With this discrepancy more accurately ascertained, the land area associated with this excess capacity can be determined and the State plan so altered. There appears to be more than one location from which the excess capacity could be eliminated without hampering or circumventing the State's objectives and/or operational requirements. Both the Quarry Point and Forest Hill areas offer opportunities to reduce the amount of planned facilities.

STATE RECREATIONAL PLAN REVIEW

Introduction

The first portion of study analysis deals with the proposed preliminary recreational plan as developed by the State of California's Interagency Task Force.

This phase of study has been divided into a review of the overall implications of the plan, its proposed recreational facilities and the proposed take-line.

Plan review and economic evaluation were completed concurrently and the analysis of each phase coordinated with the results of the other. With the financial structure of the proposed facilities apparent during the initial period of study, the following plan review was tempered so as to analyze only those aspects of the plan which were considered important at this time. Inasmuch as the financial attributes of the proposed recreational plan appeared to be undesirable from a County operational standpoint, the State plan analysis was held in perspective to this condition.

Overall Plan Review

Basically, the State plan calls for the development of five key areas in and about the lake which will result in the separation of day users from the overnight visitor group. The Forest Hill Divide, being somewhat isolated by comparison to the other areas, has been utilized for the development of overnight facilities. This is compared to the key day use area (Salt Creek) which is located adjacent to the dam and with convenient access to Interstate 80.

The orientation of day users in the vicinity of the dam with convenient access to Interstate 80 places the concentration of the greatest number of recreationists in a convenient and logical location. This situation also applies to the Clipper Creek area which will also be oriented towards the day users.

The Salt Creek facilities are proposed in an area where the government will generate borrow material for the construction of the dam. It is extremely important that the County, through the application of an applicable grading ordinance, properly monitor the development of this area. Only if grading is properly controlled can desirable facilities be developed which will be compatible with surrounding potential development. We do not anticipate it will be the Counties' responsibility to totally resolve how facilities will be developed within the State Park themselves, but they will be concerned with the protection of the surrounding properties from any unsightly or unreasonable situations relative to the facilities proposed.

Salt Creek is also the site of one of the mechanical units which will be designed and developed for the launching of boats and the transport of people. Inasmuch as any device which covers an extensive vertical

dimension can generally be considered costly, as well as presenting certain operational limitations, it would seem appropriate to consider the constructive grading of the Salt Creek area to permit more convenient water access. This could be accomplished as a part of the grading operation necessary for the generation of fill material, thereby overcoming some of the vertical differential existing between the basic facilities and the design water level. A long sloping gradient would facilitate the moving of parking and pedestrian access to the water areas. It is possible that a shorter vertical funicular may still be required, but grading could reduce the amount of vertical elevation to be overcome by these mechanical devices.

The proposed facilities at the Quarry Point site eliminates the present quarry operation. In addition, the facilities will entail the movement of people over a fairly extensive vertical differential in order to utilize floating beaches and marina facilities.

Considering the results of the financial portion of this study which indicates that there may be greater capacity contemplated at Auburn Reservoir as opposed to the demand, it is suggested that this area be one of the last to be developed, if developed at all.

There are several possible alternate sites for the floating marina facility along the southerly bank of the middle fork of the river which may be more suitable for this type of facility.

The concentration of overnight visitors with some day facilities on the Forest Hill Divide represents a logical separation of recreationists; namely, the day user and sightseer and the overnight user. Reviewing the topographical characteristics of the Forest Hill Divide and the area proposed for State Park, there appears to be more than adequate and appropriate areas within which to construct the facilities contemplated.

The financial analysis portion of this study revealed a possible discrepancy between the demand that will be applicable to Auburn Reservoir and the capacity of the facilities proposed. This discrepancy can be analyzed in detail in the second phase of study. However, this situation should be acknowledged as a result of this preliminary study and the discrepancy recognized as creating a need for lesser area requirements on the Forest Hill Divide or other areas.

The preliminary calculations indicate the total recreation areas' excess capacity amounts to approximately 1.8 million visitor days annual in the ultimate configuration of the State's recreational development. In order to put this apparent discrepancy into a perspective, the following thought process was used in arriving at an acreage equivalent.

Using the Forest Hill Divide area as an example, (note this area is a blend of day and overnight user facilities) the initial facility development represents approximately an 885,000 visitor day capacity which is

approximately one-half of the discrepancy mentioned previously. Thus, in a broad sense, the facilities and the area required to construct them on the Forest Hill Divide represent one-half of the total facilities which would be expected to generate 1.8 million visitor days annually.

According to State standards, the initial facilities constructed on the Forest Hill Divide would require 250 acres. However, comparing the ultimate recreational facilities to be constructed on the Forest Hill Divide to the total area contemplated for purchase by the State, it appears that there is approximately eight acres of open space for every acre developed. This, we assume, is primarily a result of the topographical characteristics of this area.

Therefore, the 250 acres of facilities which would generate 1.8 million visitor days per year represent approximately 2,000 acres in total area. This is approximately one-third of the total area indicated in the State plan on the Forest Hill Divide.

We hasten to point out that the apparent discrepancy between demand and capacity should be carefully scrutinized in additional study before pursuing this topic with the State. The Forest Hill Divide area was selected primarily because it represented a blend of user facilities and also represents the largest contiguous parcel of land contemplated by the State. It would, therefore, be a convenient area to work with in adjusting facilities and area requirements.

The Clipper Creek facilities appear reasonably located and should enjoy intensive use by one-day boating visitors, subject to the provision of adequate access.

The recreational and other land uses which are considered appropriate for contiguous areas will be discussed under the chapter entitled Regional Land Uses.

In summary, the following comments are made:

1. Based upon the minimum recreation standards for various uses, the area required for the proposed recreational development is less than the land area classified as less than 25%. Therefore, it would appear that the proposed facilities can be readily constructed on the Forest Hill Divide and the three other major recreational sites. It also appears the total amount of take area for these activities, following more detailed study, could also be reduced.
2. The generalized location of proposed uses and the area allocations appear to be reasonably situated. Without review of precise plans for each area, it is extremely difficult to comment further other than a general indication of their siting feasibility.

3. A question is raised relative to the concept of floating beaches and their relationship to the number of people who may be using this type of facility. The question has not been probed in depth inasmuch as it was found that the financial aspects of most recreational facilities would undoubtedly be undesirable from the Counties' operational standpoint. However, the desirability and true functionability of these types of facilities is questioned. A reasonable alternate would appear to expend some of the funds earmarked for such facilities on pools and related recreational areas located on the bluffs overlooking the lake. Such locations would greatly enhance any adjacent activity areas.

Sun exposure and water temperatures would undoubtedly be more desirable at facilities on the bluffs as opposed to the conditions existing in the bottom of the canyon. It should be noted that certain limited floating beaches should appropriately remain in order to service the boating visitors.

4. From the standpoint of surrounding land uses and access to the lake, it would appear that boat launching facilities are adequately situated so as to serve both the visitors of the State Park as well as future residents who may also wish to engage in some form of water sport on Auburn Reservoir.

Take-Line

The rectilinear take-line as proposed in House Document No. 171 and subsequent State plans is considered preliminary in nature as each agency has indicated. The actual alignment of this line is subject to present study. Geological reconnaissance currently being completed will ascertain areas where lake waters may create a public safety hazard; or where natural conditions present a hazard to the lake and its recreational users. This reconnaissance will be completed by government agencies and will, therefore, not be considered in any detail in this report. However, it is recognized that this reconnaissance may alter the concept offered in this chapter relative to the take-line but its total effect will undoubtedly be nominal. If the geological study identifies areas of geological concern, the federal government may consider the use of easements to preempt development as opposed to fee title. This would help minimize the potential tax revenue losses.

Reviewing the preliminary land use planning, it is noted that there are areas considered too steep for development which are immediately adjacent to the proposed take areas. In the Regional Planning chapter we have indicated that these areas should be retained as open space reserves thereby protecting the environment surrounding the lake.

These open space areas can most effectively be handled if they are administered by one agency; therefore, rather than divide this area equally between two jurisdictions, it would appear advantageous to minimize the take area by the federal government and leave the balance of the canyon sides and other precipitous terrain in County control.

With a policy of density translation and open space requirements the Counties can effectively administer these areas. Land owners or developers will be encouraged to leave this area undeveloped by being permitted the allocation of density from these areas to more developable sectors. This policy is used by various agencies throughout the State and provides a means of stimulating the dedication of open space areas. However, the responsibility of maintaining these areas and/or preserving them rests with the County which is the only lasting entity that can administer and protect these areas.

The present take area, excluding the lake, amounts to approximately 6,700 acres within the study area. If the take area is considered to be a contour line 20 feet above the maximum pool elevation of 1,120 feet, and assuming the average side slope is 45°, the area of take is reduced to approximately 160 acres. The 20 foot differential between maximum pool elevation and the take-line would provide for the flood charge which is anticipated to be 7-1/2 feet. This would permit the construction of limited access around the lake in key areas for maintenance.

An alternate to this take-line location would be the case where the federal government would take all lands not considered suitable for development. These areas would include all bluff property on which development should be restricted as a means of protecting the visitors from the lake.

In addition, the government should also take those "open space" areas as outlined on the Regional Development Areas, Exhibit B, thereby providing consistent administrative policies to undeveloped lands about the reservoir.

Administrative and Operational Ramifications

There are certain administrative if not operational situations associated with the reservoir which are independent of County operation of any or all of the facilities.

Auburn Reservoir, straddling a county line, will present some interesting operational responsibilities, particularly from the standpoint of policing both the water areas as well as the surrounding terrain. Even though the lake is split down the middle by the county line, it would seem inappropriate to have two sets of patrol boats covering a very thin but extremely long water area. Therefore, some type of inter-agency organization should be formed which will provide for homogenous services on Auburn Reservoir. This type of operation is, of course, financed primarily by the Counties and their tax and other revenues; therefore, detailed studies should be completed in this area in order to ascertain the financial responsibility associated with these functions and their implications to existing and proposed County budgets.

The State has indicated that they will entertain the development of some form of concessions within the boundaries of the State Park. At this point in time, these are undefined and therefore the magnitude of their implication is undefinable. However, it would appear prudent that the County, through regional planning, stimulate the development of commercial centers about the State Park areas. This would place these facilities in a situation where they could be more directly controlled by the County and also used to facilitate and encourage the development of other recreational and permanent developments. Certainly commercial areas located outside the boundaries of the State Park would more adequately and totally service the entire impact area and its community developments.

The question of utilities will become a major issue as time progresses. The concentration of facilities on the Forest Hill Divide will undoubtedly develop pressures for the creation of reasonably sophisticated utilities systems which, by the topographic limitations of the Forest Hill Divide, may necessitate connection to adjacent land areas.

Of particular note will be the sewerage demands as may be amplified by the presence of poor soil on the Forest Hill Divide. While it has not been our responsibility to ascertain the soil types of their adaptability to septic tank systems, it should be recognized that the rocky and sandstone type of soils characteristic of this area are generally considered impervious. Therefore it may become necessary to export sewerage from the Forest Hill Divide to the so-called mainland and treat and dispose of this sewerage in areas more conducive to this kind of operation.

Secondly, the development of recreational and residential projects surrounding the State Parks will undoubtedly develop isolated demands for utility services. Therefore, the Counties may wish to consider various forms of districts which can be administered by the County and made available to land owners as a means of facilitating development. This type of solution will become mandatory if development is to be encouraged in more than one location simultaneously.

Water production will undoubtedly become an issue which the local districts must be prepared to meet. The present study by the Georgetown Divide Public Utilities District will assist in the anticipation of future water demand and the areas in which the demand can be expected.

ECONOMIC EVALUATION

Introduction

The economic evaluation is divided into two main sections. One deals with the facilities contemplated by the State and the second deals with the "fringe" benefits to the Impact Study area.

Basically, the background data required to complete the first portion of this evaluation utilized the information and data contained in the State's published report. Where supplemental data was used, it has been so noted.

The impact of other economic considerations has been illustrated using other sources of published data which is also noted.

These two realms of influence constitute the majority of factors which will develop an economic impact on the area in question.

Proposed Recreational Facilities

As stated in the preliminary recreation plan report for Auburn-Folsom-Natoma Reservoirs prepared by the Auburn-Folsom Interagency Task Force (June, 1966), the Folsom Lake State Recreation Area presently supports heavy recreational use.

Developed by the California Division of Beaches and Parks, and in operation since 1956, Folsom Lake State Recreation Area attained the magnitude of four million visitor days annual attendance during the 1964-65 fiscal year. Total attendance for the past six years is shown below.

Total Visitor Day Attendance
Folsom Lake State Recreation Area: 1960-65 ¹
(000's omitted)

<u>1960</u>	<u>1961</u>	<u>1961-62</u>	<u>1962-63</u>	<u>1963-64</u>	<u>1964-65</u>
2,405	2,202	2,332	2,861	3,594	3,795

It is noticed, however, in analyzing the attendance records for recent years that approximately 80% of the total visitor day attendance at Folsom represents non-revenue producing activities; namely, sightseeing. Only some 20% of the total represents activities for which a fee is charged, which includes boat launching, picnicking, swimming, (and as of 1965, camping), riding, and hiking.

¹ Source: California Division of Beaches & Parks, and Wilsey & Ham Research.

From the aspect of facilities operating economics (revenue versus cost), it is important to estimate future revenue producing visitor day attendance separately from total attendance in order to reflect the advantages and/or disadvantages inherent to the operation of the proposed facilities. The table below shows the estimated fee-use visitor days during 1960-65 compared to the totals shown in the previous table.

Fee-Use Visitor Day Attendance
Folsom Lake State Recreation Area: 1960-65 ²
 (000's omitted)

<u>1960</u>	<u>1961</u>	<u>1961-62</u>	<u>1962-63</u>	<u>1963-64</u>	<u>1964-65</u>
481	440	466	572	719	759

In its report, the Interagency Task Force considers the operation of Folsom and Auburn Reservoir recreational facilities as one integrated unit. The hypothesis is that Folsom will reach capacity use by the time Auburn facilities are established, and that the facilities at Auburn can logically be phased into operation in order to satisfy an increasing demand.

Estimated Demand, Revenue Producing Visitor Days, Auburn-Folsom

The table on the following page presents, by five-year intervals, the estimated revenue producing visitor day attendance for Auburn-Folsom combined for the 50-year period 1977-2026. In this table, fee-use attendance estimates are presented for revenue producing day use, overnight use, and total revenue producing attendance. The estimates are presented in a range with the lower limit based on revenue days accounting for 20% of total attendance and the upper limit set at 25%. Overnight use represents about 11% of the total, based on Beaches & Parks estimates.

² Source: California Division of Beaches & Parks and Wilsey & Ham Research.

Estimated Fee-Use Visitor Day Attendance ³
Auburn-Folsom: 1977-2026
 (000's omitted)

<u>Year</u>	<u>Revenue Producing Visitor Days @ 20% Total Attendance</u>			<u>Revenue Producing Visitor Days @ 25% Total Attendance</u>		
	<u>Total</u>	<u>Day Use</u>	<u>Overnight</u>	<u>Total</u>	<u>Day Use</u>	<u>Overnight</u>
1977	2,048	1,823	225	2,561	2,279	282
1982	2,642	2,351	291	3,302	2,939	363
1987	3,037	2,703	334	3,797	3,379	418
1992	3,531	3,143	388	4,415	3,929	486
1997	4,026	3,583	443	5,033	4,479	554
2002	4,520	4,023	497	5,651	5,029	622
2007	5,015	4,463	552	6,269	5,579	690
2012	5,509	4,903	606	6,886	6,129	757
2017	6,003	5,343	660	7,504	6,679	825
2022	6,498	5,783	715	8,122	7,229	893
2026	6,893	6,135	759	8,617	7,669	948

Thus, it appears that total revenue producing visitor day demand will range between 2.1 million and 2.6 million visitor days by 1977 increasing to a range of 6.9 million to 8.6 million days by 2026. Sightseer, or non-revenue visitor days, will number about 7 million by 1977 and, should historical trends continue, reach some 22 million by 2026.

Estimated Revenue Producing Capacity, Auburn-Folsom.

The Interagency Task Force plan report describes the recreational facilities as either initial or ultimate, with no scheduled time for the installation of facilities other than those proposed as basic. It is presumed that additional facilities would be installed when required, e.g., when warranted by market demand.

The table on the following page shows the estimated visitor day capacity for the basic and ultimate facilities for Auburn, Folsom and the combined total. The capacities are shown in terms of annual averages and reflect the relative seasonal use effect.

³ Source: Wilsey & Ham Research.

Estimated Recreation Facilities Capacity, Auburn & Folsom⁴
(000's omitted)

<u>Capacity of:</u>	<u>Basic</u>	<u>Ultimate</u>	<u>Total</u>
Day Use Facilities Total	1,457	7,338	8,795
Auburn	694	2,171	2,865
Folsom	763	5,167	5,930
Overnight Facilities Total	145	1,456	1,601
Auburn	119	558	677
Folsom	26	898	924
Grand Total Facilities	1,602	8,794	10,396
Auburn	813	2,729	3,542
Folsom	789	6,065	6,854

As shown by this table, the total of all facilities planned by the Task Force ultimately will have an annual average capacity of some 10.4 million revenue producing visitor days, of which 3.5 million will be at Auburn and 6.9 at Folsom. When compared to the upper limit demand figures presented in the preceding table (8.6 million days), it is probable that the ultimate capacity will exceed demand by some 1.8 million visitor days.

However, the basic facilities capacity total (1.6 million days) is considerably less than either demand figure estimated for 1977 (2.1 million days for the lower limit and 2.6 million for the upper limit). Therefore, it would appear that the basic facilities proposed for Auburn (starting in 1977) will have an adequate market potential. Also, it would appear that phasing the installation of additional facilities as demand warrants as planned by the Task Force, is realistic.

Facilities Operating Revenue Potential, Auburn

As with capacity, the operating revenue potential associated with the Auburn facilities is evaluated in terms of annual averages. The table on the following page shows the estimated average annual revenue for the basic and ultimate facilities for day use, overnight use and the total.

⁴ Source: Wilsey & Ham Research, based on Beaches & Parks Use Standards.

Estimated Operating Revenue Potential, Auburn ⁵
(Constant 1965 Dollar Values)

	<u>Basic</u>	<u>Ultimate</u>	<u>Total</u>
Day Use	\$126,555	\$330,990	\$457,545
Overnight Use	<u>53,460</u>	<u>265,320</u>	<u>318,780</u>
TOTAL	\$180,015	\$596,310	\$776,325

Thus, it is estimated that the basic facilities, when installed in 1977, will return a gross revenue of some \$180,000 (not counting possible concessionaire revenue), valued in 1965 dollars. The proposed ultimate facilities show a potential of some \$596,300 for a grand total of some \$776,300 (1965 dollars).

Inasmuch as there is an apparent demand which will justify the initial facilities, it can be assumed that, if development phasing prudently follows demand, the above annual operating deficit would be typical throughout the project's life. Historically, concessionaire revenues range between 2% - 4% of total receipts; therefore, their influence on the total operating picture is nominal.

Potential Facilities Operating Expense, Auburn

A comparative evaluation of operating costs versus revenue is the essential element of this study. It is noted that the basic facilities planned for Auburn exceed in annual average capacity and present capacity of Folsom by some 24,000 revenue producing visitor days. Therefore, it appears entirely reasonable to consider Folsom's past operating costs as indicative of the potential expense of operating the Auburn facilities. Official records reveal the annual operating budgets for Folsom to be as follows:

<u>Annual Operating Budgets</u> <u>Folsom Lake State Recreation Area: 1961-65</u> ⁶				
<u>1961-62</u>	<u>1962-63</u>	<u>1963-64</u>	<u>1964-65</u>	<u>4-Year Average</u>
\$315,376	\$322,713	\$346,471	\$383,076	\$341,909

As shown above, the four-year average operating budget for Folsom amounts to some \$342,000, which is probably quite typical of the expense to be anticipated for operating the Auburn basic facilities. This amount, (\$342,000) exceeds the Auburn basic facilities revenue estimate (\$180,000)

⁵ Source: Wilsey & Ham Research, based on Beaches & Parks Use Standards.

⁶ Source: California Division of Beaches & Parks.

by \$162,000. Thus, the expected revenue would represent 53% of the typical operating expenses.

It is important to note that operating budget does not include loan repayment or interest.

An analysis of operating budgets for various State operated recreation areas indicates an approximate one to one ratio between expense and visitor attendance. While it is expected that economy of scale would apply to the added expense of operating the ultimate facilities proposed for Auburn, it appears reasonable to anticipate that operating expenses will always exceed revenue as long as the State use fee structure for public areas is applied.

The summary conclusion is that the proposed basic-ultimate facilities for Auburn will not generate sufficient revenue to pay for direct operating costs, or repay the loan costs of building the facilities.

It is emphasized that in this evaluation, the primary objective is to determine the economic (financial) feasibility of Placer and El Dorado Counties jointly operating the recreational facilities described in the Task Force preliminary plan report instead of State operation. In order to bring this subject into proper perspective, it appears necessary to examine the State's philosophy in operating public outdoor recreational facilities.

The Division of Beaches and Parks publishes operational statistics for the various recreational facilities it operates for the public good. An evaluation was made of the revenue-cost structure of all recreational areas operated by Beaches and Parks that provide both camping and picnicking facilities for fiscal years 1961-62 through 1964-65. The results of this evaluation are shown in the table on the following page, with the characteristics of Folsom Lake shown separately.

Cost-Revenue Structure
State Operated Recreational Facilities: 1961-65 ⁷

<u>Recreation Area Group</u>	<u>1961-62</u>	<u>1962-63</u>	<u>1963-64</u>	<u>1964-65</u>
Total Operating Costs	\$2,694,634	\$2,874,771	\$3,182,579	\$4,041,236
Total Revenue	\$ 925,697	\$1,044,233	\$1,263,308	\$1,828,338
Pct. Total Costs	34.4%	36.3%	39.7%	45.2%
Concessionaire Revenue	\$ 89,996	\$ 94,689	\$ 91,047	\$ 147,133
Pct. Total Costs	3.4%	3.3%	2.9%	3.6%
Activity Fee Revenue	\$ 835,701	\$ 949,544	\$1,172,261	\$1,681,205
Pct. Total Costs	31.0%	33.0%	36.8%	41.6%

Folsom Lake Recreation Area

Total Operating Costs	\$ 315,376	\$ 322,713	\$ 346,471	\$ 383,076
Total Revenue	\$ 99,467	\$ 104,694	\$ 117,975	\$ 122,740
Pct. Total Costs	31.5%	32.4%	34.1%	32.0%
Concessionaire Revenue	\$ 7,347	\$ 7,869	\$ 9,345	\$ 8,421
Pct. Total Costs	2.3%	2.4%	2.7%	2.2%
Activity Fee Revenue	\$ 92,120	\$ 96,825	\$ 108,630	\$ 114,319
Pct. Total Costs	29.2%	30.0%	31.4%	29.8%

In terms of total revenue as a percent of total cost, it is noted for the group that revenue in 1961-62 amounted to 34.4% of costs and increased by 1964-65 to 45.2% while for Folsom it amounted to 31.5% in 1961-62 and increased slightly to 32.0% by 1964-65. The basic contributor to the percentage increase for the group is the activity fee revenue; concessionaire revenue maintained about 3% to 3.5% during the four years. However, for Folsom, both categories of revenue maintained about the same percentage of cost during the period.

It does not appear, from these data, that a significant long-term trend toward a higher cost recovery ratio is evident.

It is recalled that the cost recovery ratio estimated for the Auburn basic facilities was 53% as compared to the group ratios discussed above. Two conclusions result from this observation. One is that the cost recovery ratio for Auburn probably is optimistic. The other is that the operating costs and revenue estimates are reasonably realistic, and can be considered indicative of the lack of economic or financial feasibility from a "break-even" point of view.

From this evaluation, it is obvious that the areas operated by Beaches and Parks reflect the philosophy of the "state-wide benefit" and that the difference between operating revenue and costs is absorbed. It does not appear likely that Placer and El Dorado Counties could afford to perform

⁷ Source: California Division of Beaches & Parks.

this "state-wide benefit" service.

The amount of revenue required to achieve a break-even point could be generated if the fee structure for all revenue producing facilities were doubled. There would have to be an additional increase in order to return a profit. However, considering the proximity of Folsom and its comparatively "desirable" recreational attributes, any increase in fees would undoubtedly discourage visitors if not retard the proposed visitor demands as the project matures.

Marina Operations

In numerous instances, marina operations can be profitable for both lessor and lessee with adequate user demand and "desirable" user environment.

The following brief analysis probes the operation of a hypothetical 200 slip marina which could be constructed and operated at several locations within the proposed State Park developments.

A preliminary indication of the marina's economic attractiveness is illustrated but this analysis should be continued in Phase II's scope of work if the Counties consider it an appropriate and generally profitable operation. Also questioned should be the State's willingness to separate this function from the other revenue producing installations.

Marina Analysis Assumptions

1. Assume 200 slips with appropriate repair, and concession facilities.
2. Seasonal use as indicated below.
3. Analysis on basis of operator with indication of County lease revenues. This assumes County contracts with State for marina operations and sub-leases to the concessionaire.
4. All costs and revenues are based upon general knowledge and do not reflect any specific design of market data relative to Auburn Reservoir.

<u>Season (By Month)</u>	<u>Berthing Revenues</u>			
	<u>% of Occupancy</u>	<u>No. of Slip/Days</u>	<u>Rate per Slip/Day</u>	<u>Gross Revenues</u>
December, January	10%	1,240	\$ 1.00	\$ 1,240
Feb., Mar., & April	20%	3,560	1.00	3,560
May	40%	1,480	1.00	1,480
June, July, August	90%	16,560	1.00	16,560
September	40%	2,400	1.00	2,400
October, November	20%	2,440	1.00	2,440
				<u>\$27,680</u>

<u>Other Concession Revenue</u>				
<u>Other Concessions</u>	<u>Gross as %⁽¹⁾ of Berthing</u>	<u>Gross Revenue</u>	<u>Suggested Lease Rate</u>	<u>County Lease Revenue</u>
Boat Storage	50%	\$13,840	10%	\$1,384
Snack Shop	60%	16,600	5%	830
Boat Rental	55%	15,200	5%	760
Sub-Total				<u>\$2,974</u>
Berthing		\$27,680	15%	4,150
Fuel Dock Operation				<u>1,500</u>
TOTAL		\$73,320		\$8,624

(1) Marina Feasibility Report - Wilsey & Ham - H. Morgan Noble

Concessionaire's Gross Revenue	\$73,300
Less County Lease Expense	<u>- 8,600</u>
	\$64,700
Less Operating Expenses 40% (Including Labor, Material, Insurance, Utilities and Depreciation)	<u>\$26,000</u>
	\$38,700
Less State Lease Fee 3% Gross (Assumed)	<u>- 2,200</u>
Net Income	\$36,500

As a means of ascertaining the overall feasibility of this operation, the net income will be capitalized at an appropriate rate and the indicated investment compared to a preliminary estimate of construction costs.

Capitalization Rate

Assume operators capital for the following courses:

70% Borrowed Capital @ 6-1/2%	=	0.0455
30% Equity Capital @ 15%	=	0.0450
		<u>0.0905</u>
Recapture		<u>.0400</u>
		0.1305

... or 13% Capitalization Rate

$$\frac{\$36,500 \text{ Net Income}}{13\%} = \$280,000 \text{ Indicated Investment}$$

The Counties' gross income from a 200 slip marina operation is \$8,600. There would be administrative expenses associated with this revenue which are estimated below. Considering the responsibilities of a lessor in a marina operation, it appears that the Counties could operate more than one marina with a nominal increase in cost. This can be analyzed in depth should the Counties elect to pursue a lease agreement with the State Division of Beaches and Parks.

Counties' Gross Income		\$ 8,600
Costs:		
Part-Time Manager	\$2,000	
Office Expense	<u>500</u>	
Net Income		\$ 6,100

Marina Facilities Costs

The following assumes that marinas would be operated where the State would provide access, utilities within convenient proximity, parking facilities, restrooms, and launching ramps. The concessionaires' responsibility would be for all other marina facilities as outlined below:

200 Slips @ \$300 each	\$ 60,000	
Mechanical Device for Lateral Movement (@ 20% slip cost)	12,000	
Floats (Fuel)	1,000	
Boat Storage (16,000 sq.ft. @ \$5.00/sq.ft.)	80,000	
Marina Hardware (1,500 sq.ft. @ \$10.00/sq.ft.)	15,000	
Boat Yard (Outdoor Storage)	5,000	
Snack Shop (500 sq.ft. @ \$30.00/sq.ft.)	15,000	
Utility Connections	10,000	
Landscaping	<u>10,000</u>	
	\$208,000	
Engineering and Contingencies 25%	<u>52,000</u>	
	\$260,000	<\$280,000 Indicated Investment

The apparent attractiveness of this facility must be carefully reviewed. First, this analysis assumes a majority of costly improvements totally funded by the State. Secondly, the operation is analyzed on the basis of its fully developed and operational basis. Obviously, each of these conditions must be thoroughly probed before any written commitments are made. A suggested detailed analysis includes a comparison of the marina potential at Folsom and its ability to siphon the majority of boating activity from the anticipated market area. The analysis would also consider the true economic advantage to be gained by the Counties in allocating a portion of existing or future management personnel to this type of activity.

In addition, there are numerous combinations of services that can be developed at any marina. These should be considered in subsequent analysis.

Taxable Retail Sales, City of Auburn

The City of Auburn will most likely account for the following portion of the total population in Placer County during the next twenty-five years. This assumed future performance is predicated upon evolutionary growth patterns.

Population Estimates, Placer County and Auburn

Both Auburn and Placer County are projected to grow significantly between now and 1990, as shown in the following table.

Projected Population, Placer County and Auburn: 1965-90⁸

	<u>1965</u>	<u>1970</u>	<u>1975</u>	<u>1980</u>	<u>1990</u>
Placer County	72,500	90,300	110,600	134,200	169,000
Auburn	6,300	7,042	7,775	8,335	9,580
Pct. County	8.7%	7.8%	7.0%	6.2%	5.7%

The population of Auburn in 1950 was 4,675 persons or 11.2% of the Placer County total; in 1960 it numbered 5,610 or 9.8% and as of 1965, it numbered 6,300 or 8.7%.

The long range projections for the County (to 1980) are published by the California Department of Finance; the 1990 estimate is an extrapolation of the Department of Finance projections. The future estimates for Auburn are based on past growth rates.

The Auburn estimates presume that additional land area will be annexed by the City in a manner similar to past policies. Therefore, the future

⁸ Source: California Department of Finance and Wilsey & Ham Research.

population estimates should be considered conservative, and do not reflect a radical change in annexation practices. There probably will be population growth in adjacent areas, and should these areas be annexed to the City, the resultant population counts could be considerably greater than shown in the table on the preceding page. It should be stressed that the estimates pertain only to permanent population.

Estimated Taxable Retail Sales, Auburn

In the following table are estimates for total taxable sales and taxable sales attributable to the permanent and non-permanent population. The sales volumes are estimated in terms of 1965 constant dollar values, and are based on permanent population per capita amounts spent for taxable items that are most subject to purchase by out of town visitors. Excluded are purchases of automobiles, home furnishings and similar items.

While this table is by no means a precise measure of total seasonal population expenditures, it does serve to illustrate the relative magnitude, and tax revenue value to Auburn, of the seasonal visitor.

Tax Revenue Value of Seasonal Taxable Expenditures, Auburn: 1965-90⁹ (millions of 1965 dollars)

	<u>1965</u>	<u>1970</u>	<u>1975</u>	<u>1980</u>	<u>1990</u>
Permanent Taxable Sales	\$2.4	\$2.7	\$2.9	\$3.2	\$3.6
Seasonal Sales	<u>\$1.4</u>	<u>\$1.6</u>	<u>\$1.8</u>	<u>\$1.9</u>	<u>\$2.2</u>
Total Tax Sales	\$3.8	\$4.3	\$4.7	\$5.1	\$5.8

As with population estimates, the future estimates of total and seasonal taxable sales are subject to evolutionary growth patterns. Future taxable sales volumes within the City of Auburn will reflect future annexation policies and practices.

The estimates shown above should, therefore, be considered conservative. Assuming a tax return to Auburn of 1% of taxable sales, the indicated tax revenue in 1965 from seasonal purchases would amount to some \$14,000, and by 1990 (in 1965 dollar values) the revenue will reach some \$22,000.

Recreationist Expenditures for Goods and Services

All recreational visitors to the Auburn Reservoir are assumed to contribute to the revenues normally associated with various goods and services consumed and provided for in the vicinity of the reservoir. These expenditures will be distributed between Auburn and existing and proposed

⁹ Source: Wilsey & Ham Research.

communities surrounding the lake. This chapter will illustrate the preliminary indication of the magnitude of these anticipated revenues and the distribution between Auburn and the surrounding communities.

Initially, Auburn may enjoy one level of penetration of the revenue as spun off by these visitors in using the lake. It is entirely possible that this expenditure profile will change as the area matures. However, for the purposes of this study, the amount of revenue distributed between Auburn and the surrounding communities is held constant.

The realignment of Highway 49 over the dam will direct the majority of all recreationists, sightseers and other visitors through or near Auburn. The total daily visitor exposure is assumed to contribute to this goods and services revenue.

In order to capture this revenue, it is imperative that Auburn develop the types of facilities that will attract the lake's visitor as he passes through or by the town of Auburn. Well designed and functionally convenient facilities will contribute to the capture of this recreationist's dollar.

In order to dramatize the magnitude of this impact on the area, subtle approaches to these expenditures have been taken. The first approach, as just illustrated, projects the indicated growth trend of Auburn and the magnitude of taxable sales which are apparently attributable to the recreationist. This projection, based on historical data, in a total sense, does not consider the full impact of the proposed reservoir.

The second approach (one contained in this chapter), attempts to indicate the magnitude of these expenditures based upon published data which documents some of the recreationist's expenditure patterns. Reports to the Outdoor Recreational Resources Review Commission, as completed by the federal government, was used in one instance and a study completed by the State's Division of Beaches and Parks was used for another.

According to ORRRC Publication No. 24, the recreationist spends approximately 32% of his dollar for food, 24% for lodging, 22% for transportation, and 22% for other miscellaneous items.

Of these particular items, 60% of the lodging expenditure, 20% of the transportation costs, and 50% of the miscellaneous expenditures are assumed to be spent in or near the park. This leaves approximately 30% of the total expenditures allocatable to the total area in or about the park. Assuming that there will be commercial ventures located around the State Park facilities, the 30% portion of the recreationist's

expenditures would be distributed between the City of Auburn and surrounding communities based upon the distribution of traffic arriving and leaving the area. As the following chart indicates, the revenues that would be allocated to future commercial centers, as contained in the various recreational villages, will be appreciably less than those cornered by Auburn.

The second approach applied to the determination of these revenues was the application of data developed by the Division of Beaches and Parks and a study of the Castle Crag State Park.

Visitor expenditures within a 50-mile radius of the park were documented during the summer of 1964. By allotting percentages of the expenditures for transportation, lodging, supplies, food, and meals between Auburn and the surrounding areas, the second distribution of revenue was obtained.

As results of this preliminary analysis indicate, there is a wide divergence of data which indicates the magnitude and location of potential visitors' expenditures. In addition, each of the studies quoted does not specifically indicate the implications of the boating public which, it is felt, spends considerably greater sums of money for certain goods and services. Therefore, depending on the dollars available for future study and the importance placed upon these potential revenues by the agencies involved, future studies should be extended towards more detailed definitions of the patterns of expenditures exemplified by the typical recreationist using inland bodies of water. The numbers offered in the following chart indicate the magnitude of the anticipated revenues but, as can be noted from the comparatively wide range of results, the determination of the impact of this revenue on the area must be customized for a particular project.

Basically, these types of revenues benefit Auburn indirectly in that they do not necessarily result in immediate or direct tax revenues. These types of revenues will, however, stimulate the economic growth of Auburn by first increasing the annual sales volumes of certain merchants thereby causing an expansion of commercial activities.

REVENUE FROM GOODS & SERVICES EXPENDITURES
AS GENERATED BY PROJECTED VISITOR DAYS

<u>Year</u>	<u>Visitor⁽¹⁾ Days (million)</u>	<u>Total Expenditure /Visitor Day</u>	<u>Total Annual Expenditure (million)</u>	<u>% of Total Traffic Thru Auburn</u>	<u>% of Expenditures Allocated to Auburn</u>		<u>% of Expenditure in Surrounding Communities (Existing & Proposed) (Placer & El Dorado Counties)</u>	
1975	2.0	\$4.50 ⁽²⁾	\$9.0	70%	21%	\$1,900,000	9%	\$ 810,000
		3.30 ⁽³⁾	6.6		38%	2,500,000	20%	1,320,000
1980	2.65	4.50	11.9	70%	21%	2,500,000	9%	1,070,000
		3.30	8.75		38%	3,320,000	20%	1,750,000
1985	3.30	4.50	14.85	70%	21%	3,120,000	9%	1,335,000
		3.30	10.90		38%	4,150,000	20%	2,190,000
1990	3.95	4.50	17.80	70%	21%	3,740,000	9%	1,600,000
		3.30	13.0		38%	4,940,000	20%	2,600,000
1998	5.00	4.50	22.50	70%	21%	4,720,000	9%	2,020,000
		3.30	16.50		38%	6,260,000	20%	3,300,000

(1) From State Report

(2) As defined by ORRRC for State Parks

(3) Result of Survey by Division of Beaches & Parks,
"A Survey: Castle Crags State Park" as
Reported in the August, 1965 News & Views

PROPERTY VALUE INFLUENCE

In order to demonstrate the potential influence of the proposed Auburn Reservoir on the surrounding developable properties, a process of land residual value determination has been completed. Basically, this process involves the determination of the residual land values assuming appropriate development for an area and comparing this residual value to the anticipated land value predicated upon the natural growth of the area without the reservoir.

The value of land is expressed as the dependent variable whose magnitude is influenced by other variables. Gross or total sales prices were used in this study and included, in addition to the land, the value of the improvements and the development cost. However, it should be appreciated that this land value will be dependent upon a number of factors which can only be accurately ascertained when a specific parcel is selected for study. Certain physical considerations (items 1, 2 & 3) combined with other sociological and economic factors (items 4 & 5) must be simultaneously considered in order to arrive at specific values.

1. Distance from reservoir
2. Topography and vegetation
3. Tract size
4. Urban proximity
5. Leisure time and disposable income

Based upon information received from the County assessors relative to the assessed value of selected parcels and the current assessment ratio for each County, it was ascertained that the average land value of unimproved properties in the Impact region are an indicated \$100.00 per acre.

In arriving at this figure we fully appreciate that there have been recent sales in the Impact area which range from \$500.00 to \$700.00 per acre. However, it is safe to presume that these recent transactions reflect the speculative activity which characteristically follows on the heels of public announcements relative to any proposed recreation and/or reclamation project.

The average size of the parcels used to ascertain the current assessed value and indicated market value were approximately 200 acres in size. It is felt that this reasonably represents the size of the parcel which will be involved in development activity in the ensuing evolutionary period. It is recognized that these areas will be developed for uses other than residential; however, it is anticipated that the majority of properties will be devoted to single family living areas.

The residual land value process applied was predicated upon the sale of an \$18,000 residence (which could be a primary or secondary residence) on a 3/4-acre parcel. Subtracting the cost of sales, profit to the builder, the cost of building construction, and the cost of land improvements, a residual land value of approximately \$1,500 per acre is obtained. This sale situation is assumed to be typical ten years hence.

In making this determination, the land improvements included paved streets, public water service, nominal lot grading, sewer collection and treatment, and the installation of power and telephone facilities.

From data obtained from the Counties, it appears that the assessed value of land has doubled in the past five years. Assuming this trend continues, land values would have appreciated to \$400.00/acre in ten years. Comparing this figure to the residual land value of \$1,500/acre noted above, there is an indicated increase of 375% in per acre values. This increase is then the difference between normal property value appreciation and that appreciation triggered by the lake's development.

The related tax revenue benefits would be dependent on the increase in tax rates and the actual amounts of land developed.

POTENTIAL REGIONAL DEVELOPMENT

Introduction

The development of the Auburn Reservoir represents extensive opportunities for the planning and design of new suburban areas with related economic and recreational potential. Development of these new suburban areas will consist of a variety of land uses, basically related to the recreational interest created by the reservoir.

Through sound and coordinated planning efforts by the City of Auburn, Placer and El Dorado Counties, the various land use elements which will be developed around the reservoir will become one of the greatest resource assets to the Impact area. Without a regional plan to provide guide lines for future development, the area could become a cluttered, uncoordinated, and mutually destructive group of land uses.

A basic element of the area's economic success lies in careful planning of the land and the insistence that all developments, no matter when they come about, be at a level which will sustain opportunities for the future, reserve the scenic qualities of the area, and be encouraging to both public and private investors seeking long-term programs and commitments.

The recommendations presented herein are only concepts and indicate the types of land uses which would be appropriate for such contiguous areas as herein described. Subsequent studies will assist in the preparation and definition of detailed development designs, land uses, utility services, and other related municipal functions. It is contemplated that the programming of various utilities and municipal services would be carefully coordinated with the land use planning and growth demands. With the broad planning proposals presented, future legislative actions will provide the answers in terms of development policies which will insure the achievement of an appropriate level of environment for the region surrounding Auburn Reservoir.

The recommendations and discussion presented herein set forth ideas which will undoubtedly take years to achieve. Therefore, the initial development of the area should be related to the economic potential of the immediate facilities proposed by the State and the recreational development which they will precipitate. Considering the numerous agencies having jurisdiction within the Impact Study area, it would appear extremely beneficial to form an area-wide coordinating committee for the purposes of planning and coordinating all major public improvements as well as the localized development in each geographical sector.

Goals and Objectives

In reviewing the recreational plans of the State and their recommendations, land uses for the contiguous areas are offered in keeping with

the following goals and objectives which should be condensed as guidelines for the preliminary planning work and subsequent studies.

1. The area's scenic and recreational qualities make a sound and strictly enforced land use planning program essential as a means of insuring future economic benefits to the various agencies and private entities involved.
2. Careful consideration should be given to the staging of all development both as to location and type of use as well as overall density.
3. Create recreational and/or residential villages which will contain a realistic economic base upon which to superimpose future development. These villages would be predicated upon an economic base which would create sound investment and development activity and also be conducive to the needs of the recreationists, resident and visitor alike.
4. The proposed highway system must be planned to accommodate the needs of both the recreationist and the permanent resident.

Development Potential

The area surrounding the Auburn Reservoir consists of many natural attractive vistas some of which overlook the future reservoir itself. The relocation of new highways throughout the area, which will be required by the reservoir development, should be planned in such a manner that the scenic value is preserved and yet exposes the majority of visitors to the area. The general inaccessibility of the lake to the recreationist and the extent of the State's recreational development plan bring into focus the importance to consider a total concept of area development which is planned to accommodate a wide variety of suburban uses integrated with the proposed recreational facilities.

Because the location of the Auburn Reservoir area is generally removed from its source of users, it is essential that the initial development be planned in small condensed units, the growth of which can be staged in a series of incremental phases. This will be necessary in order to insure the provision of adequate public facilities for both recreationists and permanent residents alike.

Along the many miles of reservoir shoreline which will be created, several areas (exclusive of those within the area described by the State plan) lend themselves to lake oriented recreational use. These areas will provide for individual boating activities and possible beach facilities. One of the areas lending itself to more intensive development is the area in the vicinity of Cherokee Bar. It is here the topography lends itself to easy access and the potential for additional marina and boat launching facilities.

Because this area is not included in the present State plan, it is offered for consideration of County purchase and subsequent lease to an entity within the private sector of the economy.

The second area which offers itself for additional boat oriented facilities is in the vicinity of the intersection of the American Canyon with the middle fork of the American River (opposite Poverty Bar). This area possesses certain topographical features which could lend themselves to a marina which could adapt to the fluctuating water level.

The suggestion that the County control waterfront property is a deviation from established federal policy. Characteristically, the federal government has controlled all Bureau-constructed reservoirs by owning all shoreline areas. However, an alternative to outright ownership would be a lease-type situation between the government and the County in which the County could sub-lease to a qualified concessionaire or development entity. The total value of this suggestion is, of course, predicated upon market demand supporting additional waterfront facilities. This can only be ascertained by subsequent study and also by observation of the actual utilization of the Auburn Reservoir. In any event, by permitting direct access to the water at semi-private facilities, lands removed from the shoreline can be enhanced from a development standpoint.

Development of the Village Concept

The construction of the Auburn Reservoir will create a need if not a demand for permanent-type dwellings. Initially, this demand will be generated by persons who operate and service the State Park, those who are employed by servicing entities, and other commercial establishments. This segment of the population will be augmented by those wishing retirement and vacation or second homes.

One attribute of the recreationist, both resident and visitor alike, which should be respected in all subsequent planning, is the need for convenience of certain goods and services. With this basic thought in mind, the need to provide for long-term stage development and the necessity of a sound economic base, the concept of a village nucleus has been evolved.

There are several economic as well as aesthetical advantages to creating the village type of mountain resort which will lead to a balanced residential-recreational community. By establishing the population of each village in a range from 15,000 to 20,000 persons, it is felt that sound economic base can be provided. Assuming that the permanent population, or the population in residents at any given time would be 25% of this total figure, it is possible to provide an economic base which would support a neighborhood or convenience-type commercial core. A center consisting of a food store, drug store, sporting goods shop, and an automotive center would provide for the basic needs of the community. These village cores could be located so that they would conveniently service the potential development areas and yet not be of such a magnitude as to destroy the desired environment. These villages could be expandable as the growth continues.

Staging of Village Development

Many of the facilities which will be required by the tourists and permanent residents are inter-dependent, with the success of one facility depending upon the presence of several others. For example, it is reasonable to assume that the development of a permanent population of any size would be dependent upon the establishment of the economic base which would be created by the Auburn Reservoir and its recreational facilities. The growth of the village commercial center, on the other hand, would be dependent upon the development of both recreational activities, resort oriented areas and the development of a permanent resident population (retirement, part-time or otherwise).

To insure the proper sequence of development, consideration must therefore be given to the staging of each village as related to the economic demand created by the development of the area. Such a program of future development phasing, however, should be a part of, and dependent upon more detailed economic and planning studies which we recommend be made prior to any major physical change within the area.

We can, however, indicate initial areas which appear to be logical for the location of development of village cores in the initial years of operation of the Auburn Reservoir. These would include:

1. The expansion of the town of Cool. The pressure for additional development is estimated to be greater here than in other areas because of the proximity to the State's Salt Creek area facilities (major initial day use development area). Therefore, more precise plans and development programming will have to be completed early enough to firmly establish the policy for the future development of this area.
2. Secondly, the State's plan generates a potential for early village development on the Forest Hill Divide northwest of the State's recreational area. The initial development should be placed near the intersection of the Todd Valley and Forest Hill-Auburn Roads. The magnitude of this development, however, will be much smaller than at Cool and will undoubtedly be phased over a much longer period of time.
3. Due to the proximity between Interstate 80 and the lake, the area lying between these two physical barriers in the vicinity of Clipper Creek and Applegate defines the third area of potential development demands. These may manifest themselves during the initial stages of reservoir development merely because they are readily accessible and easily merchandised from Interstate 80. Directing traffic from Interstate 80 to these areas would be a comparatively easy function as a means of garnering public exposure for merchandising purposes.

In considering these areas of development, the following indicates in broad terms the types of facilities which are considered appropriate for each of the geographical areas defined on the following Regional Development Map, Exhibit B.



Recommended Land Uses

In evaluating the potential land uses in the Impact area, the basic decision was made to consider those lands which are less than 25% in slope. Generally speaking, these areas can be economically developed in a manner that neither scars nor permanently detracts from the natural environment. While it is acknowledged that many developments do, in fact, exceed the 25% slope category, it is considered appropriate to consider lands less than 25% slope for this preliminary study. The following is an outline of the various types of uses which are appropriate for the various proposed village communities.

Resort oriented activity such as the private development of resorts, lodges, motels, restaurants, fly-in resort areas, cluster trailer sites, etc., with their related private recreational facilities such as golf courses and other outdoor sports, equestrian functions, are considered appropriate for the areas surrounding Cool and on the Forest Hill Divide.

Four village areas are proposed on the preliminary Regional Development Plan. These are related to and proposed to be located in close proximity to the major day use areas as contained in the State's plan. Encouragement should be given by various local public agencies to the providing of a wide range of accommodations and services as well as encouraging high standards of design and architectural control.

Specifically, the day use facilities as constructed by the State should be maximized by permitting the development of commercial or group oriented activities in close proximity. It appears that special groups or organizations would desire the purchase of private areas which would be available to their personnel on a group function basis. This would add to the economic impact of the recreational facilities provided by the State and at the same time encourage immediate development of contiguous areas inasmuch as the developer would not be faced with an exorbitant cost of development as created by a variety of recreational facilities. These group or organizational areas (for example, religious and "club" type organizations) tend to generate large volumes of people for a comparatively short period of time. However, the exposure of these persons to the area would certainly contribute to an economic benefit.

The growth of the permanent population within the residential areas could require services beyond that of a "convenience" nature. Therefore, future plans should permit the expansion of these village centers should it be deemed economically and aesthetically appropriate.

The assumed density (dwelling units per gross acre) has been estimated to range between 0.1 of a dwelling unit per acre to 3 dwelling units per acre for detached single family units. Based on a family size of three persons, the population for each area of land use would range between 0.3 and 9 persons per acre for single family areas.

Resort or dude ranches with riding facilities and some form of group accommodations would be a very attractive use in several areas, especially in the Georgetown and Forest Hill sections. Since these types of uses usually contain such activities as riding, swimming, tennis, etc., they should be located close to the adjoining public open space areas and riding trails.

The following sections discuss in detail the types of developments considered appropriate for each area as outlined on the regional development exhibit.

1. Cool - Generally speaking, the area in and about Cool has two distinct potentials. Primarily, the area north and west of Highway 49 would appear to be conducive to commercial-transient type activities. In particular, mobile home parks, motels, and special group or organizational camps would seem to be ideally located in this sector. The primary motivation behind this location would be the utilization of State constructed facilities by a large number of transient visitors. Utility demands would be clustered to a large extent in this area which can ease the problem of coping with large demands in a short period of time.

On the opposite side of the highway, it would be reasonable to project more permanent-type living units which would fulfill retirement and/or local resident needs. Considering the proximity to Auburn as well as the northern portion of the Sacramento Valley, it is not entirely inconceivable that employees of various industries within the northern portion of Sacramento Valley would find a palatable, if not desirable living environment for their families in this region.

2. Greenwood - The village complex which would be situated in or near the present community of Greenwood would service a more permanent resident-type group. Considering the topography, which is considerably flatter than most areas in the region, and the comparatively sparse vegetation, it would appear that this area would be particularly appropriate for larger parcels commonly referred to as ranchettes or small ranches. A low density is deemed desirable in this area to maintain its present integrity and attractiveness as a rural but recreationally oriented area. The topography in and about Greenwood would also encourage the creation of a small airport which could cater to the flying recreationist. Situated about the airport and within easy access would be a series of small ranches.
3. Forest Hill Divide Area - The region immediately north of the State Park on the Forest Hill Divide enjoys a delightful environment particularly created by the heavy stands of pine and the view potentials from the various knobs and ridges. Considering the density of vegetation and the comparative isolation of this area, it would appear that resorts, dude ranches, etc., which would require comparatively large parcels of land, yet would have clustered accommodations, could be very discretely located in this mountain atmosphere. The lake,

State Park facilities, as well as the National Park lands to the east are all within easy access of this area. Therefore, the resort or dude ranch operation could maximize the recreational potential offered by these three types of environment. Here again, the present airport at Forest Hill, with certain alterations and expansion, could accommodate the flying recreationist and/or groups using chartered flights to and from the guest ranches.

4. Weimar, Applegate and Clipper Gap Areas - This comparatively long and narrow land area has a mixture of potentials. In the center of this region is located predominately day use facilities, referred to as "Clipper Creek" and "Codfish Creek" on the State plan. The most important ingredient of this area is the launching facilities. Considering the proximity to Interstate 80, it would appear that this area could service both the recreationists and the local home owner as well. Vegetation is such that densities could permit clusters of residential units and/or clusters of transient accommodations without infringing upon the present atmosphere of the area. With easy access to the Clipper Creek State facilities, the resident or visitor would be enticed to use the lake. The key ingredient to the development of this area, however, is the creation of a local circulation pattern which would allow the residents of the area to move to and from the recreational facilities as well as Auburn or the Forest Hill Divide without being involved in the high speed and intense travel as typical of Interstate 80.
5. Auburn - Auburn will undoubtedly be faced with development pressures both to the north and south of the existing townsite. With immediate access to Interstate 80, it is entirely possible that additional workers employed in the Sacramento Valley will find this area attractive as a primary residence location. The town of Auburn provides for a majority of permanent resident needs in the form of commercial, municipal and professional services and it is anticipated that the variety of these services will expand as the reservoir is developed. Therefore, it appears that the primary potential for Auburn is in the realm of permanent residents with expansion of commercial facilities both on Interstate 80 and on the extension of Highway 49 over the Auburn Dam and to points south.

In conclusion, it is recommended that the initial developments be encouraged in areas adjacent to the Salt Creek and Forest Hill Divide recreational areas. It is our preliminary conclusion that the initial resort oriented development be closely related to both major highway access and the day use recreational facilities. Further, these developments should be separated from the future residential areas by open space buffers or by existing topographical features which will preserve the atmosphere considered appropriate for each type of land use.

Open Space Reserves

As previously mentioned, there are areas greater than 25% in slope, a large portion of which are adjacent to the reservoir and the proposed government take areas.

This steeper terrain, especially about the reservoir, has been allocated to open space reserve. The principle underlying the recommended classification of these precipitous shoreline areas is the need for consistency of administration. This would be a result of all areas controlled by one political entity. Since these areas are considerably over 25% in slope, and are not easily developed, the establishment or criteria of a linear open space area appears appropriate.

The two-fold concern for the use of lands in this area is (1) positive protection for the reservoir shoreline, and (2) public interest being served by securing the right that people will be able to enjoy the fullest use of the reservoir and these surrounding lands.

By maintaining these canyon and related hillside areas and open space, the natural vistas of the terrain about the reservoir would not be destroyed or encroached upon by urban development.

LAND USE SUMMARY

Auburn Impact Study Area

<u>Land Use</u>	<u>Approximate Area</u>	<u>Percent</u>
Reservoir Water Area	8,100 acres total	20%
Land Area Take-Line	6,700 acres total	16%
Land Reserve Wildlife Areas	1,170	3%
State Plan Recreational Areas	7,630	18%
Remaining Land Use Areas (1) Less Than 25% in Slope	10,500	25%
Remaining Land Use Areas 25% and Greater in Slope	<u>7,200</u>	<u>18%</u>
TOTAL STUDY AREA	41,300	100%

(1) Based upon slope studies furnished by each County.

DEVELOPABLE LAND AREA SUMMARY

(Lands Less Than 25% in Slope)

<u>Development Area</u>	<u>Approximate Area</u>	<u>El Dorado County</u>	<u>Placer County</u>
Applegate-Weimar Area	2,080		2,080
Forest Hill Divide	1,030		1,030
West of Georgetown	1,200	1,200	
West of Greenwood	2,800	2,800	
Town of Cool and Vicinity	1,500	<u>1,500</u>	
Town of Auburn and Vicinity	<u>1,890</u>		<u>1,890</u>
TOTAL STUDY AREA	10,500	5,500	5,000

The various potential development areas are further documented from the standpoint of dwelling unit capacity.

From each area is deducted 30% of the total areas which is allocated to land uses which will not support or experience single family dwelling unit construction. It is anticipated that these areas will be devoted to golf courses, local parks, airports, recreational and commercial centers, resorts, etc.

The table on the following page indicates the magnitude of development (residential) which each area could support after making the appropriate allowance for other land uses.

DENSITY AND POPULATION ESTIMATES

Development Area	Residential Development Acres ⁽¹⁾	Possible Density Range	Total No. of D.U.'s	Remarks
Weimar and Applegate Area	1,355	1.0 - 2.0 DU/ac.	1,355-2,710	Dependent upon adequate circulation system.
Forest Hill Divide	721	0.1 - 0.5 DU/ac.	72-150	
West of Georgetown (Spanish Dry Diggins)	840	0.5 - 1.0 DU/ac.	420-840	
West of Greenwood	1,960	0.5 - 1.0 DU/ac.	980-1,960	One-half of area is assumed to be devoted to other land uses.
Cool and Vicinity	1,050	2.0 - 3.0 DU/ac.	2,100-3,150	
Town of Auburn and Vicinity	1,323	2.0 - 3.0 DU/ac.	2,646-3,969	Portion of undeveloped areas assumed to be annexed to Auburn.

(1) Total areas less 30% for "other" land uses such as local recreational facilities, commercial uses, etc.

REGIONAL CIRCULATION ELEMENT

Introduction

While a comprehensive land use plan for the area surrounding the Auburn Reservoir is not a part of the Auburn Reservoir Impact Study, the preliminary development study completed indicates future highway relocations and needs. The development study as presented has recognized the need for relocating some of the existing roads within the area which will be inundated by the reservoir's development and combining these relocations with the area's future needs.

Today the study area is served by four traffic arteries. These roads provide for the local traffic needs, limited recreational use, and for the movement of lumber products in and out of the study area. This highway network consists of the following roads as illustrated on Exhibit C.

1. Auburn-Forest Hill Divide Road
2. Ponderosa Way Road
3. Highway 49
4. Highway 93

In addition to these roads, U. S. Highway 40 (Interstate 80) provides the main access to the area from San Francisco Bay-Sacramento region.

The circulation plan for the Impact area also shows highway alternate alignments related to contemplated land uses, the proposed recreational facilities, and existing commercial traffic as generated by the Forest Hill Divide area. These alternates should be an integral part of subsequent study which will analyze in depth the costs, traffic characteristics, and total functionability of each alternate. After this study is completed, the regional road system can be phased for maximum benefit.

The tentative traffic projections indicated in this study are based upon the proposed recreational facilities only. The O&D study currently being completed by Placer County will have to be coordinated with the results of this study in order to arrive at a balanced assignment of future traffic patterns.

The following regional circulation analysis was not intended to establish precise routes and costs associated with each. It was established at the beginning of this study that the cost factors associated with each route would be analyzed as a function of subsequent study and alternates considered in relationship to each other predicated upon their various user benefits.

Regional Considerations

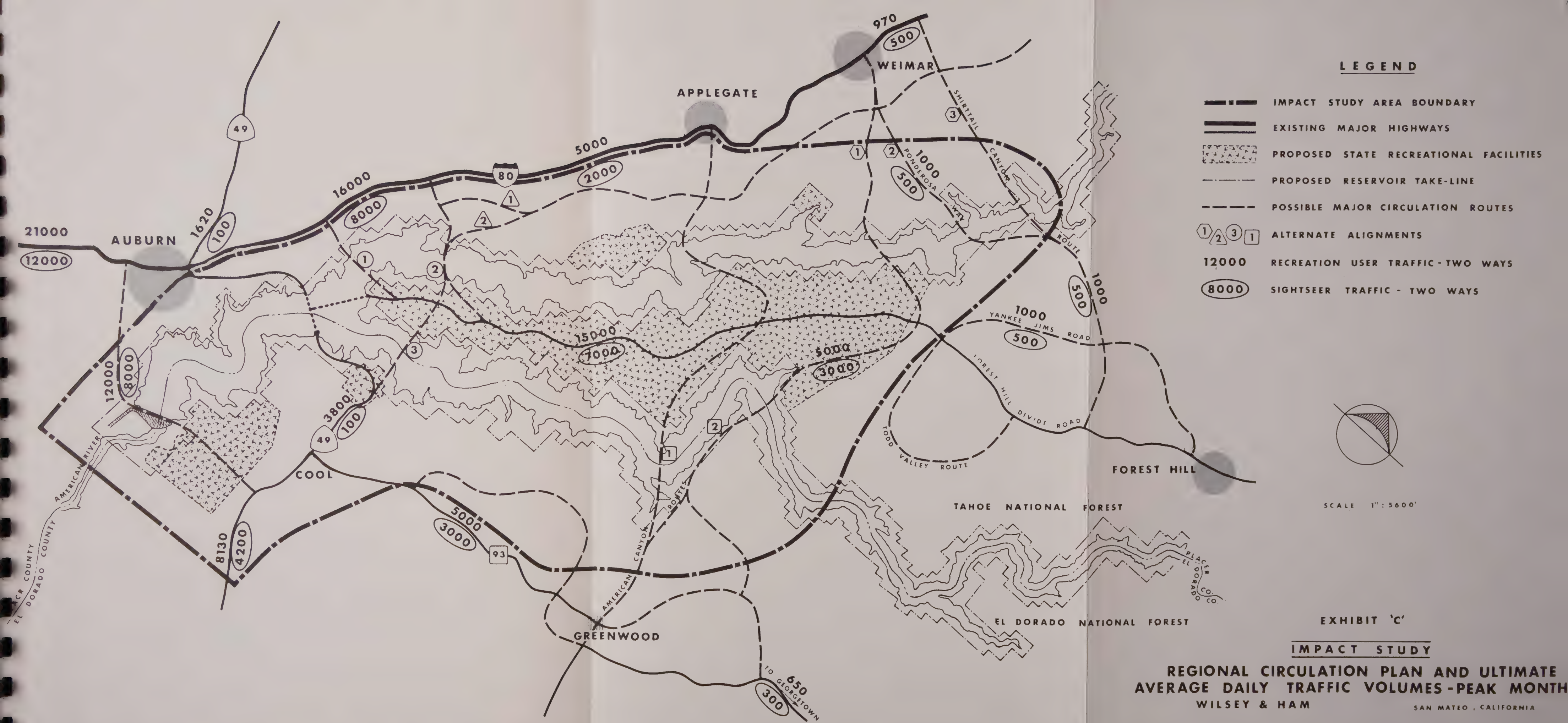
Traffic forecast for the study area indicate trip generations for the following activities: 1) Recreation, and 2) sightseeing.

These two categories are related and the design of any highway should follow their functional needs as well as those of local traffic generators.

A very important recommendation of the plan concerns the identification and classification of a scenic highway route. Because of the natural scenic character of the area surrounding the reservoir, the most important and critical part of such a scenic highway corridor will be its implementation by the local jurisdictions. The adoption of standards must be appropriate to carry out the intent of the program and the enforcement of their application upon lands and private ownership through the regulatory powers of the local jurisdictions. There is presently a wide range of measures already available to carry out the protection of this corridor. Standards for corridor protection should include policies for the following elements:

1. Land use control.
2. Signs and outdoor advertising.
3. Utility lines.
4. Earthwork operations.
5. Erosion control.
6. Locations as to the water's edge.
7. Timbercuts and preservation of plant material.
8. Selective clearing for views to improve the highway.
9. Development design.

Presently, the Mother Lode Highway (California Route 49) from Placerville to Auburn and north to Grass Valley is a part of the State scenic highway system. To augment this route, this study proposes that a highway loop from Cool to Greenwood extending to Forest Hill and back to Applegate or Weimar be considered as a scenic highway corridor connecting Highway 49 with Interstate 80 west of Forest Hill and an alternate route back to Auburn on the west side of the reservoir. This would provide a scenic highway corridor completely around the reservoir area which would have the capability of handling a majority of sightseeing visitors to the area. With this intent in mind, a program of traffic correlation and signing should be considered in order to guide the sightseer throughout the area.



The communities' investment in a system of highways is as great as, if not greater than, any other public facility. Thus, such a scenic highway corridor, because of the recreational potential of the area, becomes one more type of resource to be evaluated.

This and other major highways are in a sense the communities' welcome mat to visitors and sightseers to the recreation area. It would therefore appear to be good business practice to develop such a scenic corridor and to make this and all other roads entering the recreation area as inviting and as attractive as possible.

It should be pointed out that the highway alternates are based upon the recreation plan and on the general development areas proposed for the various contiguous land areas. Should development policies change or the trends shift, the circulation system should be re-evaluated in light of new facts and conditions.

Regional Circulation System

The following discussion of alternate circulation patterns is illustrated on Exhibit C.

1. Auburn - Forest Hill Divide Road: Presently proposed to serve only the camping and recreation facilities of the Forest Hill Divide area, this road, in essence, becomes a long cul-de-sac of five plus miles. This alignment should be extended from the southerly end of the peninsula to Auburn to provide for adequate circulation and access to the area. This extension is also in the interest of public safety as it will improve fire protection features in an area with a history of substantial burn. It is recommended that the Auburn-Forest Hill Divide Road be extended northerly from a point near the end of the peninsula to U. S. 80 at one of two points north of Auburn. Considering the precipitous terrain at the tip of the Forest Hill Divide, it would appear appropriate to leave the Divide at this point in the vicinity of the Lake Clementine Dam.

The recommended extension of this route will provide not only better access to the camping and recreational area in relationship to the trip origin and destination points, but will provide for a greatly improved system of fire protection and access onto the Forest Hill Divide area. It is further proposed that the Auburn-Forest Hill Divide Road be realigned in the northeasterly portion of the Forest Hill Divide area to tie into the proposed road extending from El Dorado County which will cross the southerly arm of the reservoir in the vicinity of the old Greenwood (Oregon Bar) Bridge then extend northerly to the existing Auburn-Forest Hill Divide Road.

Because of the nature of the recreational activities proposed on the Forest Hill Divide area, it is recommended that this road be designed for local recreational traffic. The design of the route lends itself to entrance control stations at either end of the Divide which can both adequately control the flow of traffic in and out of the area.

2. Route 93: The present Route 93 from Cool to Greenwood and Georgetown is proposed to become a part of the scenic route system looping the reservoir. This road is proposed as a major corridor beginning at Highway 49 south of Cool, following its present alignment to the extension of the present Greenwood Branch Road, where it would extend north, crossing the middle fork in the vicinity of the old Greenwood Bridge, and on to the Forest Hill Divide area. From its point of extension north, near Greenwood, the road would then extend easterly generally following existing rights-of-way and looping back toward Georgetown. The present road from Georgetown will also provide local access by being relocated just before reaching Greenwood and extending around existing topography and tying back into the Cool-Greenwood alignment Route 93 just west of Greenwood. This alignment would provide for access and circulation along the southern part of the reservoir as well as providing a basic local circulation corridor for future development.
3. Forest Hill Road: From a point near its present junction with the Spring Garden School, Forest Hill Divide Road would continue on its present alignment to a point just west of Forest Hill and the existing airport where it would turn north and follow a canyon down to the north fork of the river and crossing at a point about half-way between the existing Ponderosa Way Road Bridge and the Shirttail Canyon Road Bridge, and then extending west to Interstate 80 near Weimar. This would be the extension and final leg of the scenic loop system around the reservoir. Access to the town of Forest Hill would be provided from this road generally along the existing Forest Hill Road. The Forest Hill-Yankee Sims Road would be extended providing a loop back to the point near the entrance to the State Park.

The crossing on the middle fork has three alternate locations. Each must be further studied from the standpoint of costs and design standards. In addition to completing the scenic loop system, this section of road would also permit a more direct route to Interstate 80 for the commercial traffic generated by Forest Hill. This type of traffic will require more stringent design standards as opposed to the other types of traffic generated in the area.

Recreational Traffic Volumes

Recreational area traffic as discussed below is based upon the total number of parking spaces provided for each type of activity in the proposed Auburn Reservoir General Development Study of June, 1966.

The recreation user will make up the largest component of future traffic demand within the study area. In lieu of more detailed recreation user traffic data, an empirical measure has been used to estimate future recreation user trips for the study area. Of the total number of recreation user vehicles expected in the study area at its ultimate development, approximately 70% are expected to come from the San Francisco Bay-Sacramento area by way of Interstate 80. Since the earliest date of recreation use will be 1975, it is anticipated that the regional freeway network will be greatly expanded in the vicinity of the study area and that through this improved system approximately 23% of the recreation users from the San Francisco Bay-Sacramento and San Joaquin Valley area will enter the study area by way of U. S. 50.

Table 2 below shows the estimated origin of recreation demand for the Auburn Reservoir Recreation Area Impact Study.

During the initial phase of development in 1975 to 1980, the origin of recreation for San Francisco Bay-Sacramento area will primarily be by Interstate 80. It is anticipated that as the area matures and additional freeway routes are provided, there will be a trend decreasing the recreational traffic to the area via Interstate 80 and increase it via U. S. 50 to a point where the chart below represents long-term trends.

Table 2

Estimated Origin of Recreation Users

<u>Area of Origin</u>	<u>% of Users</u>
(1) Sacramento-San Francisco Bay Area via U.S. 40 (Interstate 80)	70.0
(2) Sacramento-San Francisco Bay Area via U.S. 50 Stockton	23.0
(3) Auburn & Surrounding Area	5.0
(4) Placerville & Surrounding Area	<u>2.0</u>
	100.0

The following Table No. 3 shows the estimate of trip ends generated by each of the six recreation areas.

The estimates have been arrived at by multiplying the number of allocated car spaces by an 80% occupancy factor, thus giving the number of spaces expected to be used on an average day during the peak month. Multiplying this figure by a factor for the turnover rate for each type of use gave an estimate of trip ends generated by the areas. A return trip factor was then applied to these trip ends to arrive at an estimate of the average daily traffic movements both ways on the highway network.

In addition to this day user traffic which would utilize the recreation facilities, an estimate has been made of the volume of sightseer traffic and these two types of traffic are shown summarized together on Exhibit C.

Table 3

Trip Generation - Ultimate Development

<u>Recreation Area</u>	<u>Beach</u>	<u>Camping</u>	<u>Picnic</u>	<u>Boating</u>	<u>Total Day Users</u>
Forest Hill Divide	8,960	1,010	2,400	1,920	14,290
Salt Creek	2,880		640	1,000	4,520
Codfish Creek				1,440	1,440
Clipper Creek	2,560		1,920		4,480
Knickerbocker Creek	2,560		1,280		3,840
Quarry Point	<u>960</u>	<u> </u>	<u>1,760</u>	<u>1,080</u>	<u>3,800</u>
TOTALS	17,920	1,010	8,000	5,440	32,370

The following turnover rates have been used for the various activities:

a. Beach	2.00
b. Boating & Marina	1.50
c. Camping	0.25
d. Group Camping	0.25
e. Picnic	2.00

The movement of traffic into the individual recreation areas will depend upon the route alignments selected for the alternate locations of the corridors across both forks of the American River.

In the case of Forest Hill Divide, approximately 80% of the traffic will be oriented towards Auburn and Interstate 80. Because of the precipitous terrain and the large number of trips generated by boating and camping groups which involves trailers, it is anticipated that traffic flow into the Forest Hill Divide area will be relatively slow moving.

Traffic in and out of the Codfish Creek and Clipper Creek areas will be largely oriented towards Interstate 80 from Applegate. Salt Creek, Knickerbocker Creek and Quarry Point traffic will gain access primarily from Interstate 80 via Highway 49 crossing the dam. The facilities at these latter three areas will create one of the most significant impacts on Auburn both economically as well as physically, and as a consequence of this, the highway capacities through Auburn and across the dam must be expanded to meet the demands of traffic arriving via Interstate 80.

Because of the composition of the recreation traffic with automobiles towing trailers and boats, it will be essential to establish suitable grades and alignment for the access roads with properly designed vehicle turnouts to provide for passing of the faster moving traffic, thus maintaining adequate traffic safety standards.

A design speed of 40 mph is considered appropriate with minimum horizontal curvature of 500' radius and vertical grades of less than 7%. In steep areas where economics dictate that grades be greater than 7%, passing lanes should be provided along critical lengths in both the uphill and downhill directions.

Sightseer Traffic Volumes

The traffic generated by the recreational users will be augmented by another large traffic generator, the sightseer. This group is generally considered to represent between 65% and 80% of the total visitor days, and in terms of traffic volumes, will represent approximately 50% of the trip end traffic generated by the recreation user.

The sightseeing trips are estimated to follow the proposed scenic highway loop system proposed by the plan. It should be noted that these trips will generally start and return to a different point of local origin, the majority entering the area by way of Interstate 80. It should also be noted that some of these trips may be considered recreational trips during a portion of their trip.

The combined effect of recreational and sightseer traffic is illustrated on Exhibit C. Recreational traffic is considered as trips in and out of the area primarily on the same route whereas sightseer traffic is either circulating to and from the dam or travelling around the proposed loop route. As shown on Exhibit C, both types of traffic are represented as average daily traffic in both directions.

APPENDIX A

Appendix A contains the traffic generation tables for the individual recreation areas, together with an estimate of sightseer traffic.

For each of these areas, Table 1 through Table 7 shows the number of parking spaces assigned to the various activities such as the beach, camping and boating. An 80% occupancy factor has been used to determine the spaces used on an average day during the peak month and the turnover rates assumed for the activities have then been applied to give the space turnover figure.

The last column in the tables shows the separate daily trips generated both in and out of the activity areas. The total trips generated for the ultimate development of each area are the figures which have been assigned to the proposed highway system, as summarized on Exhibit C.

Tables 8, 9, and 10, have been included to show the significance of the traffic increase in the Auburn area as a comparison between the initial and ultimate development of the recreation facilities. Table 8 shows that an average daily recreation traffic volume of 7,200 can be expected from the initial development of Forest Hill Divide and Salt Creek. When full development occurs as shown in Table 10, this volume can be expected to increase to 32,370 vehicles daily.

During this same period, as shown in Table 11, the sightseer traffic volume will increase from 2,500 to 8,500 vehicles on an average day.

The fourfold increase in the traffic volume is particularly significant in relation to the impact which will be generated in the City of Auburn and its environs. Table 9 shows that 12,160 vehicles per day or 40% of the total traffic will be generated by the Cool area facilities, and this segment of traffic will become an important factor in augmenting the economy of the City of Auburn.

TRAFFIC GENERATION TABLES

Table 1

Trip Generation - Forest Hill Divide (Initial Development)

<u>Activity</u>	<u>Parking Spaces Assigned</u>	<u>Average Spaces Used Daily</u>	<u>Space Turnover</u>	<u>Trips Generated Per Day</u>
Beach	600	480	960	1,920
Camping	375	300	75	150
Group Camping	60	48	12	24
Boating	<u>500</u>	<u>400</u>	<u>600</u>	<u>1,200</u>
TOTAL	1,535	1,228	1,647	3,294

Table 2

Trip Generation - Forest Hill Divide Area (Ultimate Development)

<u>Activity</u>	<u>Parking Spaces Assigned</u>	<u>Average Spaces Used Daily</u>	<u>Space Turnover</u>	<u>Trips Generated ^ Per Day</u>
Beach	2,800	2,240	4,480	8,960
Camping	2,315	1,852	463	930
Group Camping	200	160	40	80
Picnic	750	600	1,200	2,400
Boating	<u>800</u>	<u>640</u>	<u>960</u>	<u>1,920</u>
TOTAL	6,865	5,492	7,143	14,290

Table 3

Trip Generation - Salt Creek Area
(Ultimate)

<u>Activity</u>	<u>Parking Spaces Assigned</u>	<u>Average Spaces Used Daily</u>	<u>Space Turnover</u>	<u>Trips Generated Per Day</u>
Beach	900	720	1,440	2,880
Picnic	200	160	320	640
Boating	200	160	400	800
Marina	<u>100</u>	<u>80</u>	<u>100</u>	<u>200</u>
TOTAL	1,400	1,120	2,260	4,520

Table 4

Trip Generation - Codfish Creek Area
(Ultimate)

<u>Activity</u>	<u>Parking Spaces Assigned</u>	<u>Average Spaces Used Daily</u>	<u>Space Turnover</u>	<u>Trips Generated Per Day</u>
Boating	600	480	720	1,440

Table 5

Trip Generation - Clipper Creek Area
(Ultimate)

<u>Activity</u>	<u>Parking Spaces Assigned</u>	<u>Average Spaces Used Daily</u>	<u>Space Turnover</u>	<u>Trips Generated Per Day</u>
Beach	800	640	1,280	2,560
Picnic	<u>600</u>	<u>480</u>	<u>960</u>	<u>1,920</u>
TOTAL	1,400	1,120	2,240	4,480

Table 6

Trip Generation - Knickerbocker Creek
(Ultimate)

<u>Activity</u>	<u>Parking Spaces Assigned</u>	<u>Average Spaces Used Daily</u>	<u>Space Turnover</u>	<u>Trips Generated Per Day</u>
Beach	800	640	1,280	2,560
Picnic	<u>400</u>	<u>320</u>	<u>640</u>	<u>1,280</u>
TOTAL	1,200	960	1,920	3,840

Table 7

Trip Generation - Quarry Point
(Ultimate)

<u>Activity</u>	<u>Parking Spaces Assigned</u>	<u>Average Spaces Used Daily</u>	<u>Space Turnover</u>	<u>Trips Generated Per Day</u>
Beach	300	240	480	960
Picnic	550	440	880	1,760
Boating	<u>450</u>	<u>360</u>	<u>540</u>	<u>1,080</u>
TOTAL	1,300	1,040	1,900	3,800

Table 8Total Trip Generation - Initial Development

<u>Area</u>	<u>Number Trips</u>	<u>%</u>	<u>T R I P O R I G I N</u>			
			<u>From S.F. via Interstate 80</u>	<u>From S.F. via U.S. 50</u>	<u>Auburn & Truckee</u>	<u>Placerville</u>
Forest Hill	3,294	45	2,306	757	165	66
Salt Creek	<u>3,906</u>	<u>55</u>	<u>2,734</u>	<u>898</u>	<u>195</u>	<u>79</u>
TOTAL	7,200	100	5,040	1,655	360	145

Table 9Trip Generation - Cool Area Facilities
(Ultimate Development)

<u>Area</u>	<u>Number Trips</u>	<u>%</u>	<u>T R I P O R I G I N</u>				
			<u>From S.F. via Interstate 80</u>	<u>From S.F. via U.S. 50</u>	<u>Auburn</u>	<u>Placerville</u>	<u>Truckee</u>
Quarry Point	3,800	31	2,470	950	190	76	114
Salt Creek	4,520	37	2,938	1,130	226	90	136
Knickerbocker Cr.	<u>3,840</u>	<u>32</u>	<u>2,496</u>	<u>960</u>	<u>192</u>	<u>77</u>	<u>115</u>
TOTAL	12,160	100	7,904	3,040	608	243	365
% of Total			65	25	5	2	3

Table 10

Total Trip Generation - Ultimate Development

<u>Area</u>	<u>Number Trips</u>	<u>%</u>	<u>T R I P O R I G I N</u>				
			<u>From S.F. via Interstate 80</u>	<u>From S.F. via U.S. 50</u>	<u>Auburn</u>	<u>Placerville</u>	<u>Truckee</u>
Codfish Creek	1,440	4	936	360	72	29	43
Clipper Creek	4,480	14	2,912	1,120	224	90	134
Cool Group	12,160	38	7,904	3,040	608	243	365
Forest Hill	<u>14,290</u>	<u>44</u>	<u>9,288</u>	<u>3,572</u>	<u>715</u>	<u>286</u>	<u>429</u>
TOTAL	32,370	100	21,000	8,130	1,620	650	970
% of Total	100		65	25	5	2	3

Table 11

Sightseer Traffic Volumes

	<u>Inbound Trips Only</u>	<u>T R I P O R I G I N</u>		
		<u>S.F. - 80 70%</u>	<u>Sacramento - 50 23%</u>	<u>Others</u>
Initial Development	2,500	1,750	575	175
Ultimate Development	8,500	6,000	2,100	400

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